



# Zircon Pb/U age of 520 Ma for a tonalite associated with the Heazlewood Ultramafic/Mafic Complex, western Tasmania

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## Abstract

Zircon Pb/U ages of  $519 \pm 7$  and  $522 \pm 6$  Ma were obtained for a coarse and fine fraction, respectively, from zircon concentrates obtained from a sample of tonalite associated with the ultramafic/mafic complex at Heazlewood River, western Tasmania.

## INTRODUCTION

During 1984 three samples of tonalite, from different locations within the Heazlewood ultramafic/mafic complex, were sent to Dr David Kimbrough, Department of Geological Sciences, University of California, Santa Barbara, as part of an intended project to collect data from tonalite and trondjemite samples, associated with ultramafic rocks, from New Zealand and Tasmania. The New Zealand samples were found to be barren of zircon and the project was not completed.

Of the three samples sent from Tasmania, one (C1752) [CQ581056] contained enough zircon grains for both a fine and coarse sample to be obtained. The other two samples (C1750 and C1751) contained a few grains of zircon but not enough for a suitable sample.

An average age of 520 Ma for sample C1752 was published in Brown (1986, p. 70). As this work was completed in November 1984, a reference of Kimbrough and Brown (in prep.) was given for the data. Because of the above problems the latter reference was never written.

Because of a number of recent requests for the base data and a growing interest in reliable radiometric age data from western Tasmania, the following information, taken from a letter received from Dr D. Kimbrough dated 21 August 1984, is presented.

## ANALYTICAL INFORMATION

Table 1 contains the values obtained from the fine and coarse zircon fractions from Sample C1752.

## COMMENT

The fractions analysed show moderate discordance. Neglecting the possibility of a small inherent component of Precambrian zircon (and this seems reasonable considering the setting) the data are easily explained by simple Pb loss.

The fraction with the higher U content (coarse fraction) has the lower  $^{206}\text{Pb}/^{238}\text{U}$  age, as would be expected for either continuous or episodic Pb loss. The U content of zircon in this sample is low — in the range of typical ophiolite samples.

If the observed discordance is indeed the result of Pb loss, then the crystallisation age is close to the  $^{207}\text{Pb}/^{235}\text{U}$  ages which are undisturbed by recent Pb loss. The agreement, within error, of the two  $^{206}\text{Pb}/^{238}\text{U}$  ages gives strong support to this interpretation. As a result, the interpreted age of the rock is approximately 520 Ma.

Details on analytical procedures, errors, interpretation etc., are available on request from Dr David Kimbrough, Department of Geological Sciences, University of California, Santa Barbara.

## REFERENCE

BROWN, A. V. 1986. Geology of the Dundas-Mt Lindsay-Mt Youngbuck region. *Bull. geol. Surv. Tasm.* 62.

[28 July 1992]

Table 1

Sample C1752	Concentrations		Isotopic ratios			Ages		
	$^{206}\text{Pb}$	$^{238}\text{U}$	$^{208}/^{206}$	$^{207}/^{206}$	$^{204}/^{206}$	$^{206}\text{Pb}/^{238}\text{U}$	$^{207}\text{Pb}/^{235}\text{U}$	$^{207}\text{Pb}/^{206}\text{Pb}^*$
Coarse	21.43	314.8	0.82305	0.060847	0.000216	488.0	493.5	$519 \pm 7$
Fine	18.65	270.6	0.79710	0.060309	0.000173	493.8	498.8	$522 \pm 6$

$^{206}\text{Pb}^*$  = radiogenic Pb